

DP-310363

FLUID FILLED SEAT BLADDER WITH CAPACITIVE SENSORS
FOR OCCUPANT CLASSIFICATION AND WEIGHT ESTIMATION

Abstract of the Disclosure

A fluid-filled seat bladder assembly includes multiple capacitive sensing elements for detecting variation in bladder deformation due to occupant weight. The bladder is defined by upper and lower elastomeric sheets that are

5 peripherally sealed by welding, and the capacitive sensors are defined by metalized films adjoining the upper and lower elastomeric sheets. The bladder fluid separating the upper and lower metalized films acts as a dielectric material, and the capacitance or electric field coupling of each sensor increases when the separation between the respective upper and lower films decreases due occupant

10 seat weight. The cumulative change in capacitance or electric field coupling reflects the total seated weight, and the individual capacitance or electric field coupling changes provide a profile of the pressure distribution across the seat for improved occupant classification. The metalized films may be located exterior of the bladder, or may be are formed on interior surfaces of the upper

15 and lower elastomeric bladder sheets.